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A Guide to International Participation in the Strategic Defense Initiative

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Strategic Defense Initiative Organization
Multinational Programs Division

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FOREWORD

This booklet has been prepared to assist you in doing business with the Strategic Defense Initiative Organization (SDIO). In it you will find information on our organization and the process we follow in procuring products and services.

If the Strategic Defense Initiative (SDI) is to be successful, it will be because of industry's ability to produce the advanced technological capabilities we need. We are making significant progress towards achieving our goals. Such progress is the product of some of the best scientific minds in the United States and overseas working on the problem of how to destroy ballistic missiles after they are launched and before they can reach their targets. To this end, if you are a high technology organization you may have capabilities important to the SDI Program. One of our principal goals is to find and contract for such capabilities in a manner consistent with U.S. laws, regulations and international obligations.

We sincerely welcome your questions and requests for information.

Ed Lipinski
Colonel, USA
Assistant Director for
Multinational Programs

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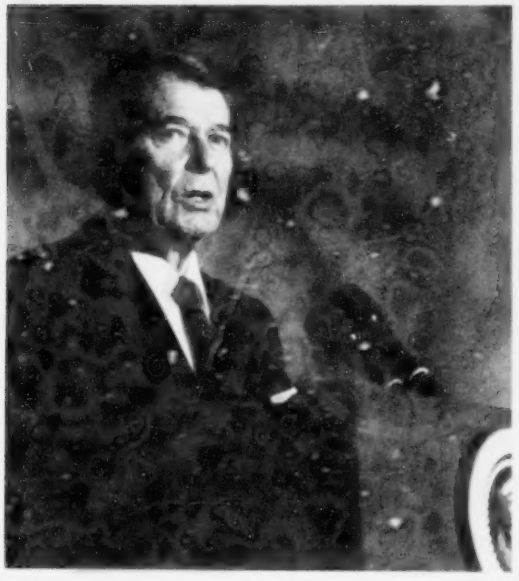


"I call upon our scientific community in our country, those who gave us nuclear weapons, to turn their great talents now to the cause of mankind and world peace, to give us the means of rendering these nuclear weapons impotent and obsolete.

"Tonight, consistent with our obligations of the ABM treaty and recognizing the need for closer consultation with our allies, I'm taking an important first step. I am directing a comprehensive and intensive effort to define a long-term research and development program to begin to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles."

President Ronald Reagan
March 23, 1983

"Together with strategic modernization and arms control, programs like SDI -- the Strategic Defense Initiative -- and one of its most promising concepts, Brilliant Pebbles, complement our ability to preserve the peace into the 1990s and beyond.

"Even as we work to reduce arsenals and reduce tensions, we understand the continuing, crucial role of strategic defenses. Beyond their contributions to deterrence, they underlie effective arms control by diminishing the advantages of cheating. They can also defend us against accidental launches -- or attacks from the many other countries that, regrettably, are acquiring ballistic missile capabilities. In the 1990s strategic defense makes much more sense than ever before."

President George Bush
February 7, 1990

SDI IN A CHANGING WORLD . . .

When President Reagan announced the Strategic Defense Initiative research program in 1983, the United States and the Soviet Union were in the midst of the cold war, and the Soviets were in the process of vigorously modernizing their country's strategic forces. Now, seven years later, the Soviet Union is undergoing a dramatic process of political change, and relations between the countries are warming.

As we respond to these encouraging developments, we have a responsibility to recognize that certain things have not changed: the Soviet Union is still a superpower, and Soviet strategic modernization continues at an impressive pace. While the Soviets have announced intentions of reducing military spending, particularly in the area of conventional forces, Soviet strategic forces still constitute a formidable threat to the security of the United States and its friends and allies around the world.

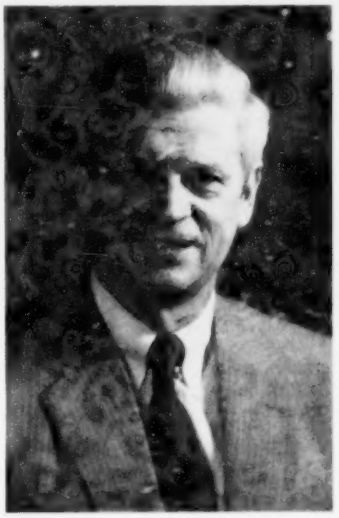
While welcoming the improvements in U.S.-Soviet relations, the United States must react prudently to the rapid changes and take precautions against potential instabilities in the Soviet Union. If the Soviets are sincere about pursuing a defensive military doctrine (and they have taken steps in the conventional area), they should welcome greater mutual reliance on strategic defenses that threaten no one.

Additionally, over the next 10 to 15 years, other nations are likely to obtain ballistic missile capabilities sufficient to threaten U.S. interests worldwide, our friends and allies, and ultimately the United States itself. The Director of the Central Intelligence Agency estimates that at least 15 developing countries will be producing their own ballistic missiles by the year 2000. These missiles may be armed with nuclear, chemical, or biological weapons.

Because of the nature of some of these third world threats, deterrence based on the prospect of offensive retaliation may not be credible or effective. In addition, given the proliferation threat, there is likely to be an increased risk of accidental or unauthorized launches.

In the absence of defensive measures, the United States and its allies could confront the possibility that these weapons of mass destruction could be used against their cities or military forces by emerging powers and we could do nothing to prevent it.

While the international security environment has changed over the last decade and will continue to change in the future, SDI remains a critical means of ensuring our security.



President Bush appointed Ambassador Henry F. Cooper as the third director of SDIO on July 10, 1990. He is the first civilian director of SDIO.

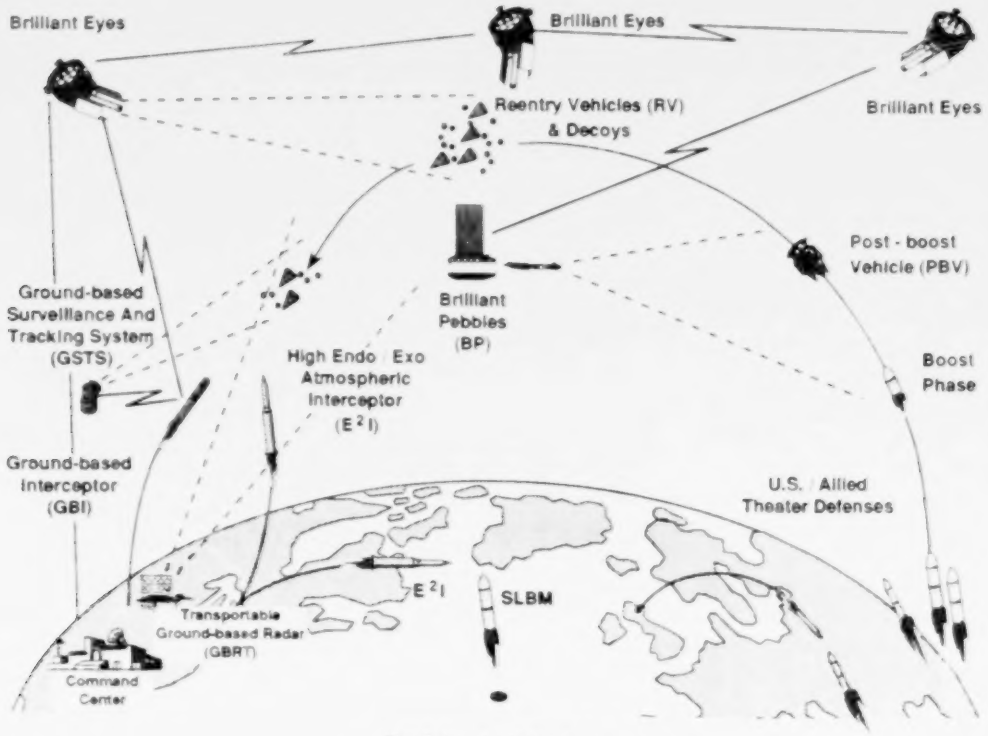
A LITTLE HISTORY . . .

Although SDI was established as a research and technology development program in January 1984, the Strategic Defense Initiative Organization (SDIO) was not chartered to manage the Department of Defense's efforts in ballistic missile defense until three months later. The SDI program, designed to take advantage of expertise in the Armed Forces, private industry, universities, and the national laboratories, was created to explore advanced non-nuclear technologies associated with strategic defenses.

When President Reagan announced the SDI in 1983, he emphasized that the program would be designed to take into account the security of our Allied and other friendly nations as well as the security of the United States.

Since then, the United States has held extensive high-level consultations with these countries in both bilateral and NATO forums. Furthermore, the United States has and will continue to consult closely with its allies regarding SDI technical and policy development.

The strategic defense system is being developed in steps and phases as resources become available and technologies mature. Within the next few years, we believe the necessary test and experimental information will be available upon which we can make an informed decision -- in consultation with our allies -- on whether to proceed with full-scale development and deployment of initial strategic defenses.



Evolving Architectures

ALLIED PARTICIPATION...

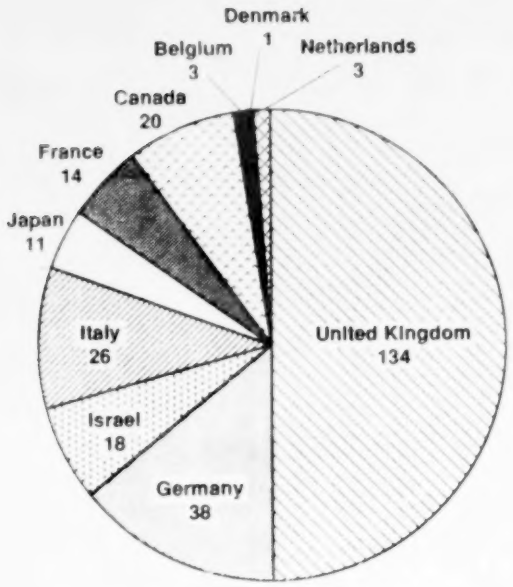
Secretary of Defense Caspar Weinberger and Ambassador Nobuo Matsunaga shake hands after signing a Memorandum of Understanding concerning Japanese participation in SDI research on July 21, 1987.

In March 1985, Secretary of Defense Weinberger invited the NATO Allies and other friendly nations to directly participate in strategic defense research. Since then, five countries have signed Memoranda of Understanding (MOUs) including the United Kingdom (Dec 1985), Federal Republic of Germany (Mar 1986), Israel (May 1986), Italy (Sep 1986), and Japan (July 1987). The MOUs are not related to a specific project, but are designed to facilitate allied participation in SDI research. While such an MOU is helpful, it is not mandatory for participation. France, the Netherlands, and Israel have signed Memoranda of Agreement (MOAs) to promote joint work on specific SDI projects.

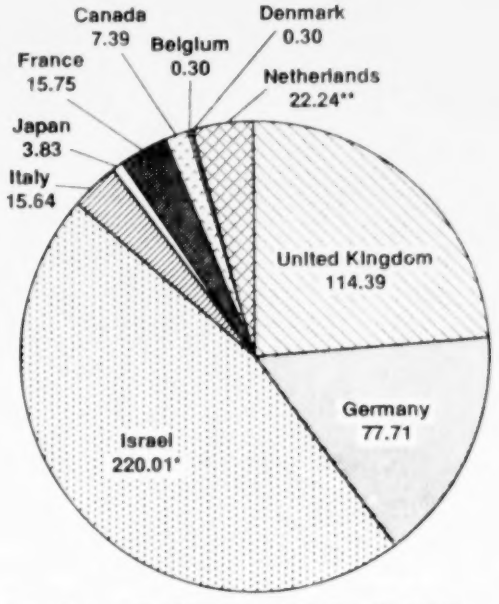
SDIO's first contracts with non-U.S. firms were awarded in late 1985. By November 1990, 268 contracts worth more than $ 479 million had been awarded to foreign participants in the program.

The United States believes that allied scientific and technical expertise can and is making a substantial contribution to the SDI program by accelerating the schedule and reducing overall costs.

268 Contracts



$479.29 Million



* Includes $47.1 Million Contribution By Israel

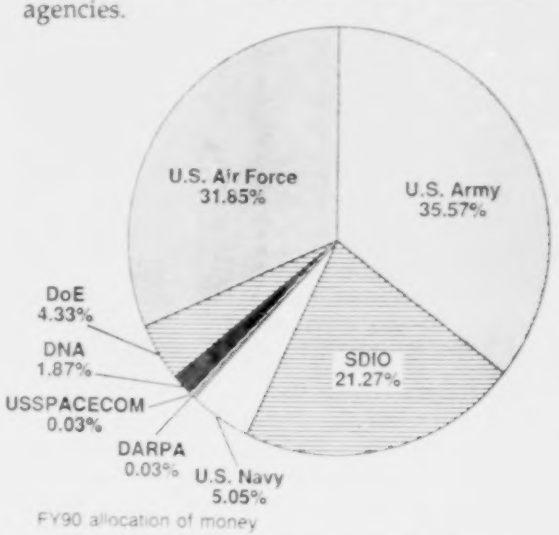
** Includes $7.0 Million Contribution By Netherlands

Cumulative contracts and dollar values awarded to foreign participants as of November 1990

SDIO is a defense agency and reports directly to the Secretary of Defense. While SDIO is the focal point for policy and program formulation, the operational aspects of SDI work are performed through the SDI Executive Agents and their research facilities, service commands, and other installations at various locations throughout the United States.

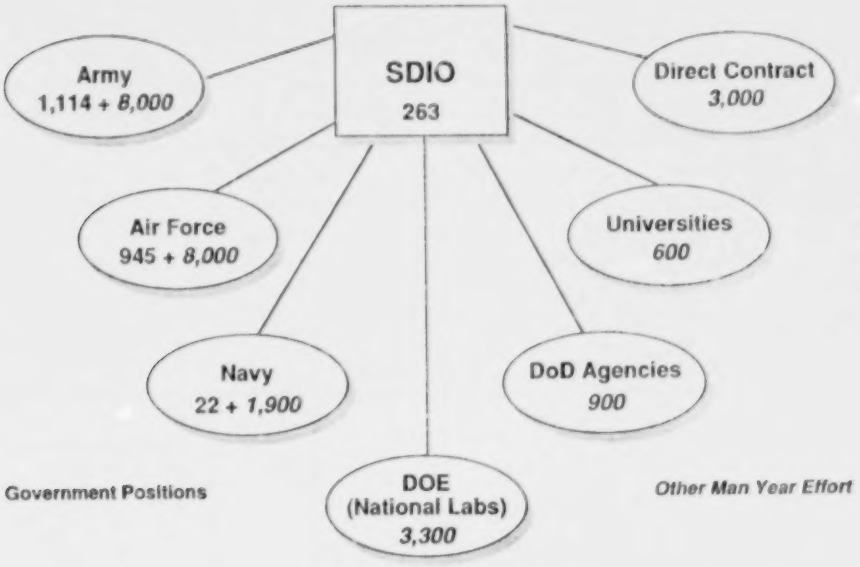
Money appropriated by Congress for SDI flows through DoD to SDIO. The Director, SDIO, determines the overall program budget and allocates the money to his program managers within SDIO. These program managers provide money to the military services and other agencies who actually execute most of the programs. The majority of research and related work is pursued through contracts awarded on a competitive basis by the SDI Agents to private industry, universities, and other research organizations.

In FY90, SDIO retained about one-fifth of the annual budget for SDI. Approximately one-third went to the Army, one-third to the Air Force, and the remainder to the Navy, the Department of Energy, and other defense agencies.



FY90 allocation of money

The Strategic Defense Initiative Organization is headquartered in the Pentagon in Washington, D.C.



In Fiscal Year 1990
Approximately 28,000 Man Years Were Devoted To SDI

THE SDIO ORGANIZATIONAL STRUCTURE

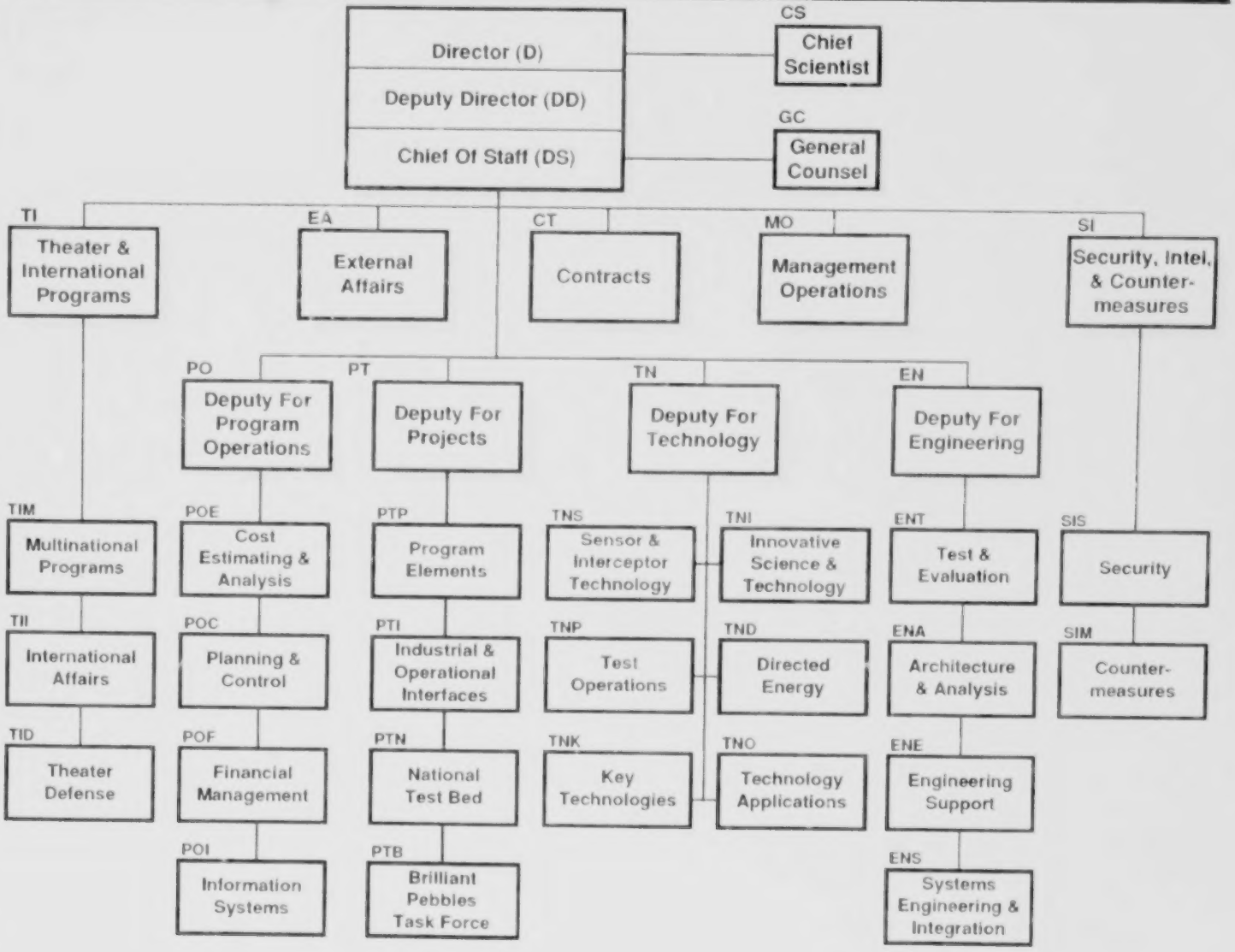
SDIO is organized into four Deputates and five Directorates. In general, the Deputates manage the technologies associated with the development of a strategic defense system while the Directorates deal with the myriad of functions associated with the management and development of the system. Below each of these Deputates and Directorates are numerous support offices.

The chart on the following page shows the organizational structure of SDIO. In the following pages, brief descriptions are provided of the offices that are of primary importance to potential foreign participants. For a complete description of the charter of offices within SDIO, the ***SDIO Organization and Functions Manual*** is available through the External Affairs Division of SDIO.

THE MULTINATIONAL PROGRAMS DIVISION

The Multinational Programs Division (SDIO/TIM) deserves special mention because of its function as the central contact point for allied participation in SDI. Located under the Theater and International Programs Directorate, its role is to facilitate contacts between foreign embassies, governments, and industries and the technical and contracting offices in SDIO.

SDIO ORGANIZATION



TI

Theater and International Programs Directorate

Serves as the principal advisor for theater defense, multinational programs, and international and governmental affairs. Develops overall strategies and policies regarding these functions and directs their implementation and management. Except for treaty compliance questions, oversees all arms control activities impacting the SDI program. Advises Director, SDIO, and staff regarding effect of national and DoD policy and strategy on SDI research, technology, and architectural design concepts. From an international perspective, analyzes means of achieving compatibility between SDI programs and evolving strategy and policy. Provides policy and planning liaison with U.S. embassies and other organizations abroad as well as allied ministries and embassies.

TIM

Multinational Programs Division

Administers allied participation programs for SDIO. Serves as central point of contact for allied activities in the SDI program and for visits to SDI facilities. Responsible for accreditation of allied representation and ensuring fair treatment of allied participants throughout the acquisition process. Coordinates visits, foreign disclosure, export licenses, contractual announcements, contract awards, cost, schedule, and performance analysis. Maintains databases on RFPs, foreign contracts awards, cost and schedules. Develops implementation strategies. Functions through country program managers for MOU countries and other allies who participate on a selective basis.

TII

International and Government Affairs Division

Participates in preparation of MOUs and other international agreements involving SDI cooperative research. Coordinates with organizations which influence or set defense strategy and policy. Manages use of space range assets on foreign territory for SDI experiments and testing. Plans, develops, supports, and coordinates SDIO activities related to Defense and Space Talks (DST), Strategic Arms Reduction Talks (START), and Missile Technology Control Regime (MTCR) issues.

TID

Theater Missile Defense Division

Manages Theater Missile Defense (TMD) programs and policies. In combination with the Architecture and Analysis Directorate and the Engineering Deputate, promotes technology and development plans to support proposed concepts. Manages contracts in support of TMD programs. Interfaces with other SDIO technology efforts to ensure cross-fertilization. Coordinates TMD programs with DoD (especially with the Army) and allies.

CT

CONTRACTS DIRECTORATE

Serves as the contracts management advisor of SDIO. Develops and implements policies for award and administration of SDIO contracts, reviews statements of work for compliance with applicable federal, DoD, and SDIO policies and standards. Develops source selection plans, monitors contracting actions in terms of performance, and recommends action as appropriate. Assists SDIO elements in contract planning, requirements definition, cost and schedule strategy development, and negotiates contracts on behalf of SDIO.

EA

EXTERNAL AFFAIRS DIRECTORATE

Serves as the principal legislative and public affairs advisor to Director, SDIO. Participates and coordinates with the Office of the Assistant Secretary of Defense, National Security Council, Department of State, and other organizations on legislative and public affairs. Provides SDIO interface with members of Congress and their staffs, officials of other agencies, news media, and general public. Ensures information released is consistent with DoD and SDIO policies. Administers speakers program. Assists OSD(LA) in all activities involving SDIO congressional actions. Coordinates public appearances of Director, SDIO. Coordinates clearances of unclassified documents.

SI

SECURITY, INTELLIGENCE AND COUNTERMEASURES DIRECTORATE

Develops and implements policies, plans, programs, and procedures in intelligence support, threat assessment, countermeasures, counterintelligence, security, and exchanges. Provides management and oversight of all SDIO security programs, technology transfers, and foreign disclosures. Reviews documents and makes national interest determinations regarding foreign owned corporations' access to classified information. Coordinates foreign accreditation, and controls foreign visits to SDIO related facilities by approving or denying the visit requests. Conducts independent analyses of proposed SDI system and component designs from adversarial point of view. Serves as SDIO point of contact to the Intelligence Community.

PT

DEPUTY FOR PROJECTS

Manages the conceptual design, demonstration/validation, full scale engineering development, and production phases of the acquisition process for the SDS elements. Defines and incorporates improvements supporting increased SDS effectiveness and producibility. Collaborates with the Deputy for Engineering to validate system designs and to provide appropriate testing environments. Collaborates with the Deputy for Technology to transfer new technology into SDS element projects for systems development. Develops SDS acquisition strategies and baseline requirements for each phase of the SDS acquisition process. Oversees management of the National Test Bed.

PTP

Program Elements Directorate

Provides SDIO projects leadership and coordination of design, development, test, demonstration, validation, and evaluation activities for assigned weapon and sensor elements. Serves as SDIO focal point for SDS elements and coordinator of guidance to executing agents. Plans and manages system element development strategy and represents system elements in internal programmatic, budgetary, and technical management reviews. Manages space transportation and launch requirements for the deployment of the SDS.

PTI

Industrial and Operations Interfaces Directorate

Maintains centralized office responsive to operational organizations outside SDIO. Ensures operational views, concerns, and requirements are integrated into SDIO analyses, scheduling, and planning. Establishes SDS manufacturing policy, strategy, and planning. Establishes and manages all SDS Manufacturing, Operations, Development and Integration Laboratories. Analyzes producibility risks.

PTN

National Test Bed (NTB) Directorate

Designs, acquires, and maintains in the form of the NTB a comprehensive capability to experiment with and evaluate alternative SDS architectures and key defense technologies. Manages the activities necessary to design, develop, and maintain the NTB. Guides National Test Bed Joint Project Office operations. Manages all NTB activities to provide engineering and scientific support across all SDIO activities and to provide system decision support for SDS major milestones.

PTB

Brilliant Pebbles Task Force

Plans and directs all aspects of development for the Brilliant Pebbles element. Establishes necessary plans and program objectives including performance, cost, schedule, and management for the Brilliant Pebbles element and its integration into the SDS. Provides schedule and performance data. Establishes and coordinates working groups to support the day-to-day Brilliant Pebbles activities.

EN

DEPUTY FOR ENGINEERING

Provides engineering support across all SDIO activities. Develops concepts and alternatives for all phases of the SDS and for architecture and system design for Phase I and Command Center Element. Develops and executes concept design and engineering to integrate Phase I elements into an operational system. Develops follow-on architectures which incorporate candidate SDS elements. Ensures synergism between SDS and theater missile defense concepts and architectures. Manages SDIO pilot command center development, threat analysis, and T&E program. Provides engineering assessment, advice, and recommendations to the Director, SDIO, and Deputies for Projects and Technology. Coordinates and integrates all engineering activities within SDIO and its executing agents.

ENT

Test and Evaluation Directorate

Reviews and coordinates the overall test and evaluation function within SDIO to include policy and planning guidance. Develops SDIO T&E policy and provides test criteria for test planning, design, support, and conduct to SDIO, the Military Services, and Defense agencies. Coordinates development and approval of SDS Test and Evaluation Master Plan.

ENA

Architecture and Analysis Directorate

For each phase of the system, develops, analyzes, and specifies SDS element performance specifications and operational characteristics through integration of hardware and software for sensors, weapons, and command center. Prepares scenarios, tools, and test capabilities for analyses and development efforts, and supports milestone decision documentation requirements.

ENE

Engineering Support Directorate

Provides engineering support activities for SDS and element programs. Focal point for developing affordable system safety, producibility, logistics, survivability and supportability strategies, policies, and plans. Develops policy guidance to foster early development of Integrated Logistics Supportability concepts and to ensure element development planning adheres to fundamental principles of life cycle cost analysis and maintainability. Coordinates threat scenarios and develops threats against which the SDS is designed and evaluated. Performs facilities and environmental analyses for SDS related expansions and testing.

ENS

Systems Engineering and Integration Directorate

Manages system engineering activities for SDS, including requirements definition and DEM/VAL program for Phase I. Develops and conducts system simulation involving SDS. Controls and maintains SDS engineering policies and standards. Develops SDS configuration control policy.

TN

DEPUTY FOR TECHNOLOGY

Provides technical direction for the SDI program in defining and validating technologies. Maintains expertise in essential technological disciplines. Manages R&D and test projects to create the technology base to support long- and near-term commitments of SDI program. Manages technology projects and associated tasks to satisfy performance and design requirements. Researches natural and hostile environments. Conducts experiments, test demonstrations, and analyses to validate technology supporting SDS concepts and designs.

TNS

Sensor and Interceptor Technology Directorate

Plans and executes R&D and testing of sensors, interceptors, and command and control. Develops components for integration into validated sensor, interceptor, and communication subsystem hardware. Defines advanced concepts and establishes requirements for technology experiments and test demonstrations.

TNK

Key Technologies Directorate

Plans and executes long-range R&D efforts to support SDS requirements. Develops technologies and tactics to enhance functional survivability of potential SDS elements in hostile environments. Reduces major uncertainties in capability to predict vulnerability of enemy targets. Advances technology in launch systems, power, materials, and structures.

TND

Directed Energy Directorate

Manages R&D directed energy projects to perform boost, post-boost, midcourse, terminal phases kill and midcourse and terminal phase discrimination missions. Develops technologies to include selected nuclear directed energy concepts, high energy laser and particle beam weapons, and the associated beam control and acquisition, tracking, and pointing technologies.

TNP

Test Operations Directorate

Designs, develops, and conducts fast-response testing of unique concepts and high yield approaches for SDI weapons, seekers, and targeting applications. Develops accelerated test programs for emerging special application technologies, and executes on-orbit command and control of resulting data collection, validation, and demonstration payloads.

TNI

Innovative Science and Technology Directorate

Conducts R&D and testing of innovative concepts and solutions to mission requirements and threats. Ensures projects are competitive and independent of ongoing programs involving related technologies. Analyzes test results and makes recommendations. Plans transfer of technology programs to SDIO activities. Seeks large, small, disadvantaged businesses, universities, and governmental laboratories to stimulate near-term technological advances.

The SDI Small Business Innovation Research (SBIR) Program is also administered by this Directorate.

TNO

Technology Applications Directorate

Evaluates SDI technology advancements and explores opportunities for application to other DoD programs and federal agency requirements as well as to the civil sector. Maintains contact with industrial, professional, and academic groups and institutions to identify areas of mutual interest or need involving technology advancements relevant to SDI R&D and testing.

Although the U.S. Government spends more money on goods and services each year than anyone else in the world, competition for contract awards is fierce. Companies must be aggressive in understanding requirements and tailoring proposals to show how their capabilities can best meet the government's needs.

A substantial portion of SDI procurements is open for allied participation. If allied governments and research organizations are willing to put forth the effort to understand and work within the U.S. procurement system, success is possible.

PROCUREMENT INFORMATION

Since the Strategic Defense Initiative is a research program, the sections of the Federal Acquisition Regulation (FAR) dealing with research and development acquisitions apply to prospective SDI contracts with allied firms. (See FAR, Parts 25 and 35, and DoD FAR Supplement, Part 35.)

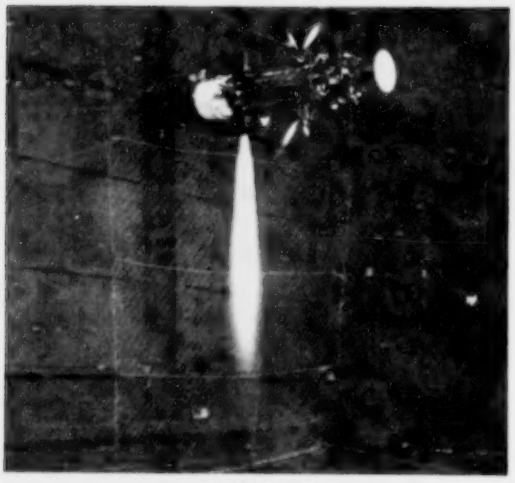
All SDI contracts are awarded strictly on the basis of technical merit and cost in accordance with the procurement practices mandated by the Congress. It is DoD policy that competition provides the best natural means of ensuring that, price and other factors considered, the best interests of the U.S. Government are served during the acquisition process. While the majority of SDI contracts are awarded on a competitive basis, some are awarded non-competitively.

Advance planning is critical to successful contracting since it allows the prospective contractor to anticipate the requirements. Advance planning should include a careful and continuous examination of trade journals and industry news magazines as a source of information on developing programs and potential contracting and subcontracting opportunities. Allied firms are also encouraged to pursue personal contacts with U.S. and other allied contractors involved in the SDI program.

Due to the often short time period between formal announcements of procurements and the date proposals must be submitted, early contact with the Multinational Programs Division within SDIO can be helpful. The office can work with contracting and program management personnel to make an early determination of the extent of allied participation that will be allowed in the procurement and then ensure that adequate disclosure guidance is prepared and in place so that U.S. and allied industry are able to move quickly to form teaming arrangements if so desired. The Multinational Programs Division can also help facilitate export licensing and visit procedures.

Allied companies can learn about SDI contracting efforts in much the same manner as for other U.S. procurements. In some cases, allied nations have full-time procurement specialists assigned to their embassies in Washington, D.C., whose primary responsibility is to stay abreast of DoD contracting activities. Each country that has signed an MOU with DoD promoting SDI research (and a few others) has a designated point of contact for SDI matters in its embassy. Allied government and industry representatives are also invited to attend the annual Advanced Planning Briefing for Industry (APBI) sponsored by SDIO. Allied representatives holding appropriate security clearances will receive classified briefings on the status of the program and upcoming procurements for the next fiscal year.

SBI Flight Tests



ON TARGET
Date: 1 August 1989
Weight: 220 pounds
Length: 75 inches

AHIT
Date: 24 July 1990
Weight: 40 pounds
Length: 23.5 inches

Dramatic improvements in size and weight reduction have been demonstrated in space-based interceptor technologies

TYPES OF CONTRACTS

While overall acquisition of the system requires flexibility in selecting contract types, each acquisition has unique requirements and risks requiring independent assessment to select the proper contracting vehicle. The complexity of SDI research and development usually results in greater risk assumption by the Government versus the contractor. Individual contracting strategies are developed in concert with the Contracts Directorate, General Counsel's Office, and the technical community to ensure the proper contract type, incentives, and schedules. A range of contract types from fixed price to cost reimbursement is used in developing and acquiring the strategic defense system.

Although contracts can be awarded on either a competitive or non-competitive basis, many SDI awards are made on a competitive basis.

Competitive Awards

Competitive proposals often allow for factors other than price to be considered. These factors may include the technical capabilities of the prospective contractor and the anticipated effectiveness of the proposed approach.

The formal competitive cycle begins with an announcement in the *Commerce Business Daily* identifying the product and service that SDIO or one of its Executing Agents is planning to procure in the near future. This announcement is normally followed after 15 days by a formal *Request for Proposal* (RFP). The proposal usually must be submitted within 30-60 days of the RFP.

The selection process generally involves the evaluation of proposals to determine

which offers are in the competitive range (i.e. have a reasonable chance of being selected), negotiations or discussions with all firms in the competitive range, selection of the apparently successful offeror, and final negotiation with that company prior to the award. The evaluation of proposals is often performed by a Source Selection Evaluation Board, consisting of a group of technical experts familiar with both procurement procedures and the technical requirements of the RFP.

Contract types are grouped into two broad categories: fixed-price contracts and cost-reimbursement contracts.

For the traditional acquisition of goods and services, DOD prefers a firm, fixed-price contract. Changes during the period of the contract may be negotiated, however. Fixed-price contracts may also include incentive clauses.

Cost-reimbursement awards provide for the payment of allowable and allocable incurred costs, as prescribed in the contract. These contracts establish an estimate of total cost for the purpose of obligating funds and establishing a ceiling that the contractor may not exceed without the approval of the contracting officer. An in-depth discussion of cost-reimbursement contracts can be found in Part 16 of the FAR.

SPECIAL PROVISIONS AFFECTING CONTRACTING WITH FOREIGN FIRMS

In addition to normal requirements for competition in contracting, several special provisions have been enacted governing contracting with foreign governments and foreign firms. The first applies to the entire Department of Defense while the other applies to SDI research only.

- The Bayh Amendment to the Fiscal Year 1983 Department of Defense Appropriations Act stipulates that no DoD R & D contracts may be awarded to foreign governments or firms when there is a U.S. entity equally competent to carry out such research and development and willing to do so at a lower cost.

- The Defense Authorization Acts of Fiscal Year 1988 and Fiscal Year 1989 (the Glenn Amendment) prohibit the awarding of new SDI contracts to foreign entities unless the Secretary of Defense certifies that work under the contract cannot be competently performed by a U.S. firm at a price equal to or less than the price at which it would be performed by the foreign government or firm. The restrictions do not apply to subcontracts or to contracts awarded before the enactment of the legislation on December 14, 1987. In addition, the following exemptions are permitted:

  (a) the contract is to be performed within the United States;

  (b) the contract is for research, development, test or evaluation in connection with antitactical ballistic missile systems;

  (c) the foreign government or foreign firm agrees to share a substantial portion of the total cost.

Non-Competitive Awards

Non-competitive contracting will occur only after it meets rigid requirements for a waiver of the competition requirements as outlined in the U.S. Statute (see 10 U.S.C. 2304(c)).

One of seven exemptions from free and open competition must be established and written justification by the contracting officer is required. (See FAR Section 6.302 for detailed information.) In brief, the exemptions are as follows:

1.) Only one responsible source and no other supplies or services will satisfy agency requirements - This exemption allows for the submittal of unsolicited proposals that demonstrate a unique and innovative concept that is both otherwise unavailable to the U.S. Government and does not resemble the substance of a pending competitive acquisition.

2.) Unusual and compelling urgency - This exemption allows for circumstances that would result in serious financial or other injury to the U.S. Government.

3.) Industrial mobilization; or engineering, developmental, or research capability - This exemption retains certain facilities that would be vital in a national emergency or would allow a balanced source of supplies in the case of an industrial mobilization.

4.) International Agreement - This exemption allows for terms that are mandated by an international agreement or treaty between the U.S. Government and an international or foreign organization. There are no such international agreements or treaties relating to SDI that provide for this exception.

5.) Authorized or required by statute - This exemption is allowed when a statute expressly authorizes that an acquisition be made through a specific agency or from a specific source or that the acquisition be of a particular brand name item.

6.) National Security - This exemption permits a waiver if disclosure of an agency's needs would compromise national security.

7.) Public interest - This exemption allows a determination to be made by the head of the agency and Congress must be notified within 30 days.

The procurement cycle for a non-competitive contract is initiated by the requirements determination cycle in the advance planning/market research phase or by the submission of an unsolicited proposal.

The cycle itself is composed of many of the same steps as the competitive cycle. The proposal, either solicited or unsolicited, is generally evaluated by the U.S. Government within 30-60 days. A proposal qualifying for a non-competitive award is still subject to the CBD synopsis requirement, subject to certain exceptions outlined in the FAR.

Broad Agency Announcements

A Broad Agency Announcement (BAA) may be issued at any time and is often open for extended periods of time. The earlier a response is submitted the better the likelihood of receiving funding.

BAAs are usually used when the primary aim of the research effort is to attempt to increase knowledge in science and/or to advance the state of the art. The research effort should meet one of the following criteria:

(1) The primary aim is a fuller knowledge or understanding of the subject under study, rather than any practical application of that knowledge; or,

(2) The primary aim is to determine and exploit the potential scientific discoveries or improvements in technology, materials, processes, methods, devices, or techniques.

Alpha Laser

Ground testing of the Alpha laser occurs in a 50-foot tall vacuum chamber on TRW's Southern California test site.

HOW TO GET INVOLVED

STEP 1: Familiarize yourself with the DOD procurement system

As a first step, prospective contractors should become familiar with the predominant types of goods and services SDI purchases, the locations where they are purchased, and the approximate dollar amount of purchases in a given area. Careful consideration should be given to the extent to which there is a match between a firm's capabilities and the needs of SDI. The general descriptions of SDI Executive Agents and the types of contracting work they do is presented in Chapter 5 and may be useful in gaining a general understanding of SDI procurement on a broad scale.

STEP 2: Review the Commerce Business Daily

Since the Commerce Business Daily (CBD) is the official announcement medium for Federal procurements, it is essential for any company seriously interested in marketing to the U.S. Government to regularly review the publication. Generally all procurements over $25,000 are summarized in the CBD, and a notice of pending procurement is normally placed in the CBD at least 15 days prior to issuance of the solicitation.

Allied firms should pay particular attention to the categories of "Experimental, Developmental, Test and Research Work (research includes both basic and applied research)", and "Experimental, Developmental, Test and Research Work (research includes both basic and applied research) Potential Sources Sought" where the majority of SDIO-related procurements will be advertised.

If allied participation in the procurement will not be permitted, the announcement will usually include a statement to that effect. However, even if the procurement is closed to allied participation at the prime contractor level, it may be possible for a foreign firm to team with a U.S. firm or act as a subcontractor.

STEP 3: Get on the Bidders' List

SDIO often uses internal mailing lists to identify potential bidders for a procurement. Since every SDI contracting agent maintains his or her own list, it is essential to apply individually to each installation at which a company hopes to do business. The application usually consists of completing a Standard Form 129 (available from the SDIO Contracting Office) which generally describes the company and asks for information regarding the products and/or services that it can provide. Prospective contractors should also submit bidders' mailing list applications to other government agencies active in their field of expertise.

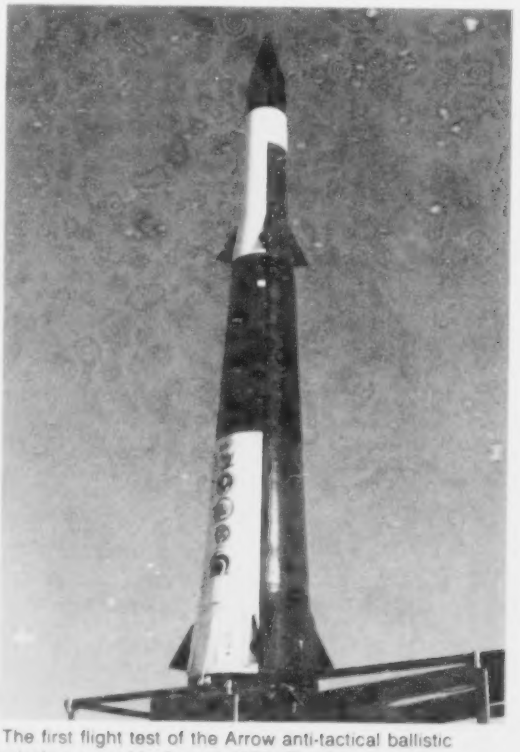
It is important to note, however, that all companies on the list are not notified of every procurement. Because there are sometimes more companies in the SDI source system than are necessary to achieve adequate competition, it is not safe for a company to assume that because they are listed in the system they will be notified of every procurement in their particular field. However, by reviewing the CBD each day, firms can identify interesting Requests for Proposals (RFPs) as they are issued and request copies of solicitations on which they would like to bid.

However, it is important to respond to every solicitation received as a result of being on a bidders' list, even if no bid or proposal is offered. A simple postcard or letter indicating "no bid" will suffice. Otherwise, a firm may be dropped from the list without notice. Likewise, it is advisable to keep a record of addresses to which applications have been sent, so that applications may be updated as necessary.

STEP 4: Direct Contacts

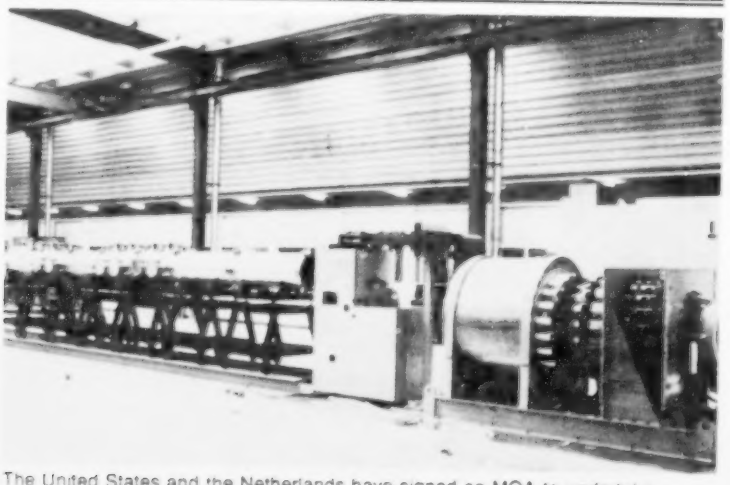
One of the most productive techniques for identifying procurement opportunities within SDIO and its agents is through direct contact with technical requirements personnel. Although this can be somewhat expensive, time-consuming, and does not in any way guarantee a contract or influence the competitive selection process, the contact does enable contractors to develop an early and thorough understanding of the requirements. This is especially important in R&D, where long-range planning and the proper allocation of company resources are essential. Consistent with applicable procurement laws and regulations, SDI technical and procurement personnel welcome inquiries and discussions with appropriate company representatives.

Arrow Missile



The first flight test of the Arrow anti-tactical ballistic missle occured in August 1990. The Arrow program is jointly funded by the U.S. and Israeli governments.

Netherlands EM Gun



The United States and the Netherlands have signed an MOA to undertake cooperative work in electromagnetic gun research.

STEP 5: Prepare and Distribute an R&D Brochure

Every business firm interested in obtaining R&D contracts from the U.S. Government should consider preparing an R&D brochure that provides relevant information on their firm. Whenever you contact a U.S. Government procurement office, you should provide a copy of this brochure to the contracting and technical personnel. An R&D brochure is not the same as a general sales brochure. As a minimum, it is suggested that your R&D brochure contain the following information:

— Name and address of the organization
— Type of work for which the firm is especially well qualified
— R&D work now being performed
— R&D work that has been completed
— Other government contracts undertaken that are relevant to the type of work currently being sought
(For all contracts referenced, be sure to list the contract number and give a brief description of the work performed, both as a prime or subcontractor)
— Name and qualifications of scientific and other personnel employed full time
(Include information on education, professional experience, papers published, whether the the person holds a security clearance, etc.)
— Names and business connections of consultants and other scientific personnel available to the company
— Description of the facility
— List of production equipment
— Laboratory and test equipment
— Other special equipment
— Current financial statements
— Security Clearance Information -- If your company holds a facility security clearance granted by your government, so state.

HINTS ON PREPARING PROPOSALS

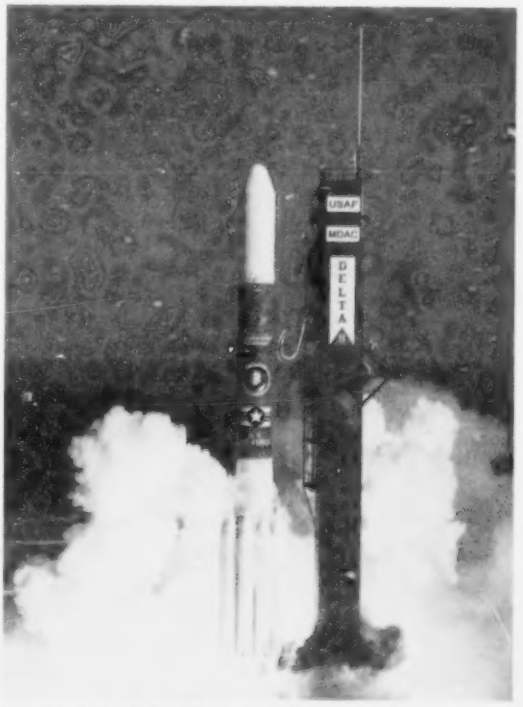
The preparation of an effective proposal is perhaps the most important part of the marketing process. As a general rule, companies which are not familiar with preparing proposals for U.S. Government contracts should seek professional assistance that is appropriate to the complexity of the procurement and its potential value to the company. The European Office of Aerospace Research and Development (EOARD) is a source of such assistance as are many private consulting firms. While it is well beyond the scope of this publication to present thorough guidelines on this complicated subject, the following information may be useful to acquaint firms which are inexperienced in Government contracting with some very basic requirements.

First and foremost, the instructions as stated in the solicitation must be followed exactly. Extreme care should be taken to fully respond to every requirement in the exact detail called for. Delivery quantities, dates, terms, conditions, product specifications, company representations, certifications, acknowledgements, signatures, and everything else requested in the solicitation must be provided in the proper format. The proposal or bid must be submitted on time. Technical proposals, which are typically required in SDI procurements, must adequately address each issue identified in the RFP. It is imperative to remember that the selection process only allows for consideration of what is properly presented in the proposal or bid and does not consider outside factors, no matter how obvious.

The relative lack of flexibility in U.S. Government procurement, even under negotiated contracting procedures, is often difficult for inexperienced contractors to understand. Many contracts have been lost because a bid arrived late or because a proposal failed to respond sufficiently in an area where it was obvious the company had substantial expertise. Nevertheless, the procurement regulations have been established to ensure fair and equitable treatment for all companies bidding on U.S. Government contracts, and are, therefore, rigidly enforced without exceptions for "extenuating circumstances."

All questions regarding a specific procurement should be addressed to the contracting officer identified in the solicitation. Although it may appear more convenient or direct to seek guidance from the technical project office, the contracting officer is the only official authorized to represent the U.S. Government in procurement matters.

Delta Liftoff



Launch of the Delta 183 booster from Cape Canaveral AFS in April 1989 carried the Delta Star spacecraft into orbit. The experiment was part of research conducted by SDIO to examine rocket plumes from high altitudes.

Copies of publications and technical specifications referenced in solicitations and contracts may be obtained through the contracting office. Other sources for Federal or military specifications are contained in the Index of Federal Specifications and Standards, and the Department of Defense Index of Specifications and Standards. These documents may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.

All firms, particularly small firms with limited resources, should be judicious regarding the solicitations on which they bid. The process of preparing a high quality proposal is expensive and time consuming, especially the R&D procurements frequently sought by SDI. Firms generally stand a better chance of obtaining a contract by emphasizing proposals on projects closely aligned with their capabilities, as opposed to trying to "blanket the market" by bidding on everything remotely related to their field.

A firm has the right to know why a bid or proposal has been unsuccessful. It is SDI policy that upon written request, unsuccessful offerors will be debriefed after contractor selection has been announced, but normally prior to contract award. The request for debriefings should not be regarded as establishing an adversarial relationship between SDI and the contractor. The debriefing should be an important part of a learning process which enables a company to submit a better proposal the next time.

Current Research Interests of SDIO's Innovative Science and Technology Directorate

HIGH SPEED COMPUTING
- Optical Computing and Optical Signal Processing
- Parallel Processing
- Mathematical Methods and Algorithms
- Self Adaptive Processing and Simulation

SENSING, DISCRIMINATION AND SIGNAL PROCESSING
- Detectors for Sensing and Discrimination
- Optical Sensors
- Reliable Advanced Electronics
- Integrated Detection Estimation and Communication Theory
- Laser Satellite Networking
- Boost Phase Detection
- Terahertz Technology
- Interactive Discrimination

SPACE POWER AND POWER CONDITIONING
- Non-Nuclear Space Power and Power Conditioning
- Advanced Pulse Power Physics
- Nuclear Space Power
- Advanced Electro-Chemical Prime Power

DIRECTED AND KINETIC ENERGY CONCEPTS
- Electromagnetic Propagation and Directed Energy Concepts
- Short-Wavelength Chemical Lasers
- High-Power Microwave Sources
- Advanced Beam Combining Concepts
- Advanced Accelerators
- Particle Beams
- KE Interceptor Integration
- Ultra Short Wavelength Lasers
- Propagation Through Disturbed Environments
- Mid-Atmospheric Effects

MATERIALS AND STRUCTURES
- Advanced Composite Materials
- Electronic and Optical Materials
- Diamond Technology
- Electronic-Materials Interfacing
- Optical Glass and Macromolecular Materials
- Space Structures and Dynamics
- High Pressure Metastable Materials
- Optical Sensor Survivability
- Superconducting Materials
- Interactive Space Technologies

PROPULSION AND PROPELLANTS
- Electric Propulsion
- Advanced Propellants
- Low Emission Propellants

All of the procurement activities for the SDI program are done either through the SDIO Contracts Directorate or by the SDI Executive Agents. The SDIO Contracts Directorate is primarily concerned with those procurements that are done in support of the SDIO staff elements and those that are directly done with the allies. The Executive Agents handle the major portion of SDI contract activities and are located at various installations throughout the United States. In addition to SDI procurements, these Agents do normal contracting for the various military departments and other Government agencies at their installations.

SDI EXECUTIVE AGENTS

In the following paragraphs, we will discuss the major Executive Agents performing work in strategic defense.

U.S. ARMY CONTRACTING ACTIVITIES

The U.S. Army Strategic Defense Command (USASDC) is the central Army contracting agency for SDI ground-based programs and supporting technologies. Funds are distributed among the element project managers and technology directorates. The project offices and technology directorates initiate contracts requirements packages (CRPs) and transmit them to the Contracting and Acquisition Management Office (CAMO) for action. The CAMO issues the solicitation, negotiates and awards contracts with the assistance of the requiring activities and keeps higher headquarters at USASDC and SDIO apprised of the status of critical actions. SDIO Agencies that are affected by the acquisition are included in the coordination loop as required. Once the contracts are awarded, SDIO elements and Agencies are included in appropriate contract management activities, such as design reviews, to the extent required.

U.S. ARMY STRATEGIC DEFENSE COMMAND (USASDC)

Principal Interests:

Advanced research and development in the fields of interceptors, active and passive sensors, discrimination, and signal/data processing applicable to Strategic Defense Initiative (SDI); analytical studies on radar and optical observables, bulk discrimination technology, algorithm development, advanced propulsion technology; test and evaluation of advanced technology components of computers, propulsion systems, optical systems, and radar systems; analysis of new and novel applications of science and engineering seeking revolutionary approaches to ballistic missile defense concepts.

Major SDI Program Elements:

Systems Analysis/Battle Management (SA/BM)
Theater Missile Defense (TMD)
Directed Energy Weapons (DEW)
Kinetic Energy Weapons (KEW)
Exoatmospheric Reentry-Vehicle Interceptor Subsystem (ERIS)
Ground Based Interceptor (GBI) and Terminal Infusion Program
High Endoatmospheric Defense Interceptor (HEDI)
Sensors

Airborne Optical Adjunct (AOA)
Terminal Imaging Radar (TIR)
Ground Based Radar (GBR)
Survivability, Lethality, and
Key Technologies (SLKT)
Ground Based Laser (GBL)

Address:
Commander
U.S. Army Strategic Defense Command
P.O. Box 1500
Huntsville, Alabama 35807
Tel: (205) 895-4340

HEDI

The first flight test of the High Endoatmospheric Defense Interceptor (HEDI) was conducted Jan 26, 1990. HEDI technology could provide the final tier in a multi-tier defense against enemy ballistic missiles.

U.S. AIR FORCE CONTRACTING ACTIVITIES

The Air Force is the executing agency for SDS space-based systems. Primary execution of these SDS programs and experiments is the responsibility of Air Force Systems Command, Space Systems Division, located at Los Angeles AFB, CA.

U.S. AIR FORCE SYSTEMS COMMAND / SPACE SYSTEMS DIVISION

Principal Interests:

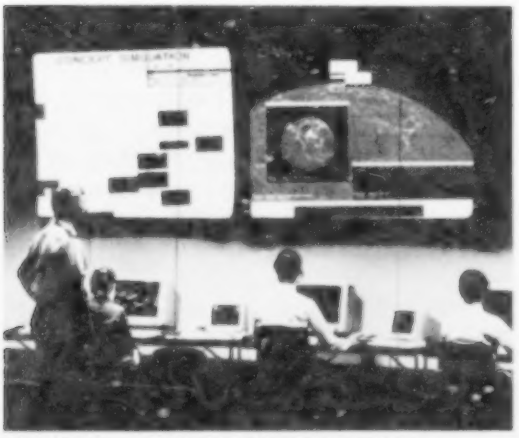
Plans, programs, and manages system programs to acquire qualitatively superior space and missile systems and subsystems, and related hardware; provides for the activation and alteration of missile sites and ground launch facilities; performs the functions of launch, on-orbit tracking, data acquisition, and command and control of DOD satellites; and effects recovery of various space packages.

Major SDI Program Elements:

Space-based Surveillance &
Tracking System (Brilliant Eyes)
Space-based Interceptor (SBI)
STARLAB
Advanced Launch System (ALS)

Address:
Commander
Space Systems Division (BC)
Postal Box 92960
Los Angeles, California 90009
Tel: (213) 363-2855

Command and Control Center



The U.S. Army's Advanced Research Center in Huntsville, Alabama, conducts simulations to validate experimental battle management/command, control and communications systems concepts.

ELECTRONIC SYSTEMS DIVISION

Principal Interests:

Air Force Systems Command's Electronic Systems Division is Hanscom's host organization. ESD manages development and acquisition of electronic command, control, communications and intelligence (C^3I) systems. These systems combine computers, radars, information displays and communications gear to monitor hostile forces, process information for military commanders and transmit their orders.

Among the C^3I systems ESD has developed are the E-3A Sentry Airborne Warning and Control System, the Ballistic Missile Early Warning System, the Ground Wave Emergency Network and the North American Aerospace Defense Command Center in Cheyenne Mountain, Colo.

Major SDI Program Elements:

System Analysis and Battle Management
Command and Control Center

Address:
Commander
Electronic Systems Division (BC)
Hanscom AFB, Massachusetts 01731
Tel: (617) 377-4973

AIR FORCE SPACE TECHNOLOGY CENTER

Principal Interests:

The Air Force Space Technology Center (AFSTC), located at Kirtland Air Force Base, Albuquerque, New Mexico, is the Air Force's focal point for space technology planning and development. It integrates research and development activities at its three laboratories; Weapons Laboratory, Astronautics Laboratory, and Geophysics Laboratory. Collectively, the Air Force Space Technology Center and its laboratories manage directed energy research, nuclear weapons effects, survivability issues, rocket propulsion, and investigates the Earth and space environment. The center correlates research results with systems demonstration needs and pinpoints key space technology areas for long-range plans. The center works with other government organizations on joint efforts to develop routine, reliable and survivable spacecraft.

The Weapons Laboratory (WL), also at Kirtland Air Force Base, plans and executes the Air Force's exploratory and engineering development programs in advanced weapons technologies. It performs research and development in nuclear weapons effects, high energy lasers, survivability, microwaves, and pulsed power physics.

Major SDI Program Element:

DEW	WL
SATKA	AFSTC, WL
SLKT	AFSTC, WL
KEW	AFSTC

Address for information about AFSTC and WL at Kirtland AFB:
Air Force Space Technology Center
ATTN: AFSTC/BC
Kirtland AFB NM 87117-6008
Tel: (505) 844-3819

Argus

The Argus is a modified NC-135 aircraft outfitted with multiple optical-quality windows to allow several high-resolution cameras and other sensors to record SDIO experiments.

The Astronautics Laboratory (AL), located on Edwards Air Force Base, California, conducts research, exploratory and advanced development programs for liquid, solid and hybrid rockets; advanced rocket propellants; electric propulsion and interdisciplinary space technology.

Major SDI Program Elements:

Surveillance, Acquisition, Tracking & Kill Assessment (SATKA)
Survivability, Lethality & Key Technology (SLKT)
Kinetic Energy Weapons (KEW)

Address:
Air Force Flight Test Center
ATTN: AFFTC/BC
Edwards AFB, CA 93523-5320
Tel: (805) 277-2619

The Geophysics Laboratory (GL), located at Hanscom Air Force Base, Massachusetts, conducts basic research, exploratory and advanced development in the space, atmospheric, and terrestrial environments. The laboratory studies the effects of space environments on orbiting Air Force structures; gravitational and crustal-motion effects on ballistic missiles; and improved ways to measure and predict weather.

Major SDI Program Elements:

Surveillance, Acquisition, Tracking & Kill Assessment (SATKA)
Survivability, Lethality & Key Technology (SLKT)

Address:
Electronic Systems Division
ATTN: ESD/BC
Hanscom AFB, MA 01731-5000
Tel: (617) 377-4937

ROME AIR DEVELOPMENT CENTER

Principal Interests:

RADC plans and executes research, development, test and selected acquisition programs in support of Command, Control, Communications and Intelligence (C^3I) activities. The principal technical mission areas are communications, command and control, surveillance of ground and aerospace objects, intelligence data collection and handling, information system technology, solid state sciences, electromagnetics, electronic warfare, photonics, and electronic reliability and maintainability.

Major SDI Program Elements:

BMC^3 Technology
DEW
SATKA

Address:
Commander
Rome Air Development Center (BC)
Griffiss AFB, New York 13441
Tel: (315) 330-4020

PBV Damage

A Post-Boost Vehicle (PBV) is severely damaged during a simulated kinetic energy interceptor/PBV engagement. The test results concluded that the PBV and its reentry vehicles would no longer be functional if this were an actual engagement in space.

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Principal Interest:

The Air Force Office of Scientific Research (AFOSR) supports fundamental research designed to increase the understanding of the natural sciences and to stimulate the exploitation of new scientific discoveries. Original and unique scientific research will extend understanding of the sciences which are of interest to the following scientific directorates of AFOSR:

Directorate of Aerospace Sciences (NA)
Directorate of Chemical and Atmospheric Sciences (NC)
Directorate of Electronic and Material Sciences (NE)
Directorate of Life Sciences (NL)
Directorate of Mathematical and Information Sciences (NM)
Directorate of Physical and Geophysical Sciences (NP)

Major SDI Program Elements:

DEW
IS&T
SBIR

Address:
Air Force Office of Scientific Research
Bolling Air Force Base
Washington, D.C. 20332-6448
Tel: (202) 767-4943

AERONAUTICAL SYSTEMS DIVISION / DIRECTORATE OF R & D CONTRACTING

Principal Interests:

Provides system engineering and technical direction for the Aeronautical Systems Division and conducts advanced aerospace systems studies. Procures for the following Laboratories:

Aero Propulsion and Power Laboratory - Exploratory and advanced development programs in air breathing, electric and advanced propulsion, fuels and lubricants, power generation, and support techniques.

Avionics Laboratory - Exploratory development programs in the electromagnetic areas of transmission and reception (above 15GC); molecular electronics; vehicle environment lasers; photo materials and optronics; position and motion sensing devices; vehicle navigation, guidance, and defense; reconnaissance and avionics communications; and electromagnetic warfare.

Flight Dynamics Laboratory - Exploratory and advanced development programs in flight dynamics, structures, aerodynamics, aerothermodynamics, performance, stability, control, control displays and crew station environmental control, aerodynamic decelerators and escape alighting and orbital attachment, airframe and equipment bearing, and experimental simulation and flight testing techniques.

Materials Laboratory - Exploratory and advanced development programs in materials sciences, metals and ceramics, nonmetallic materials, manufacturing technology, and materials application.

Electronic Technology Laboratory - Exploratory and advanced development programs in electro-optics, integrated circuits, focal planes, detectors and advanced electronic circuits.

Cockpit Integration Directorate - Exploratory and advanced development programs in crew station controls, displays, image generators, information management software, pilot decision aids and pilot-vehicle interface concepts.

Manufacturing Technology Directorate - Exploratory and advanced development programs in manufacturing processes and computer integrated manufacturing, advanced tools and concurrent engineering.

Signature Technology Directorate - Exploratory and advanced development programs for vehicle signature reduction and countermeasures.

Technology Exploitation Directorate - Exploratory and advanced development programs on improved integration of individual technologies, new multidisciplinary initiatives, and technology transition.

Air Force Armament Laboratory (Eglin AFB, FL) - Exploratory and advanced development programs on electromagnetic launchers, interceptors, mega-ampere switches, munitions, ring laser gyros, munition dispensers, laser optics, videographics, signal processing and miniaturized electronics.

Major SDI Program Elements:

SLKT
SATKA
DEW
KEW
Kinetic Kill Vehicle Seeker

Address:
Directorate of R&D Contracting (PK)
Aeronautical Systems Division
Air Force Systems Command
Wright-Patterson Air Force Base, OH
45433-6503
Tel: (513) 255-3741

U.S. NAVY CONTRACTING ACTIVITIES

The Navy's contracting efforts are principally used to support basic and applied research type efforts. Receiving approximately five percent of the annual SDI budget, the Navy has not been assigned any DEM/VAL program management responsibilities. Although contracting for basic research is decentralized and supported by several contracting offices, the majority of contracting efforts are concentrated in the Office of Naval Research and the Space and Naval Warfare Systems Command.

OFFICE OF NAVAL RESEARCH

This office is concerned with the support of research and technology that is potentially relevant to the missions of the Navy and Marine Corps. Contracts are generally awarded in response to unsolicited proposals. The interests of the office are covered under two major headings:

Naval Research. Physics, electronic and solid state sciences, logistics, mathematical sciences, operations research, statistics and probability, information and computer sciences, fluid dynamics, physiology and biomedicine, organizational effectiveness, engineering psychology, personnel and training research, geography, earth physics, atmospheric sciences, metallurgy, chemistry, energy research, structural mechanics, and oceanography

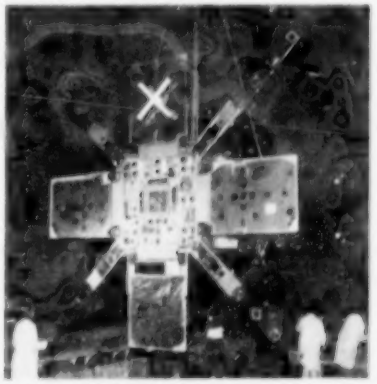
Naval and applied research and exploratory developments on new technology, concepts and systems for aerospace, surface and undersea vehicles and their various subsystems, including sensors. Aerodynamics, controls, advanced aerospace and underwater weapon design, mines and mine warfare, acoustic and non-acoustic detection, signal processing, and advanced power or propulsion concepts, stealth and counterstealth, and the influence of marine environment are areas of interest. Work is also supported to solve operational forces problems and to provide guidance and new alternatives in Navy planning.

Major SDI Program Elements:

IS&T
DEW
KEW

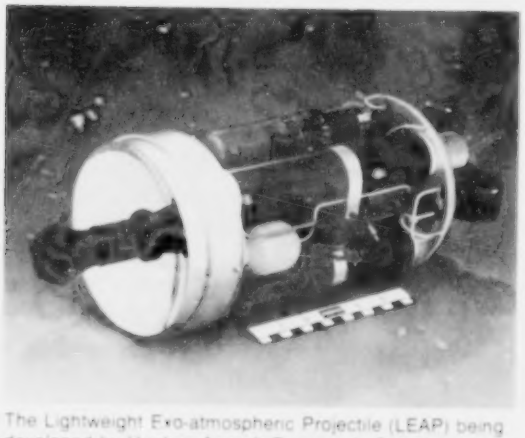
Address:
Chief of Naval Research
800 North Quincy Street
Arlington, Virginia 22217
Tel: (703) 696-4715

LACE



The Low-power Atmospheric Compensation Experiment (LACE) was launched in early 1990 to study the distorting effects of the earth's atmosphere on laser beams.

LEAP



The Lightweight Exo-atmospheric Projectile (LEAP) being developed by Hughes Aircraft Company's Systems Group has made great strides in the miniaturization of interceptors. The projectile weighs just over six pounds, is six inches in diameter, and is about 14 inches long.

SPACE AND NAVAL WARFARE SYSTEMS COMMAND

Principal Interests:

Research, development, test and evaluation for command, control and communications; undersea and space surveillance; electronic warfare; navigational aids; electronic test equipment; electronic materials, components, and devices.

Major SDI Program Elements:

SATKA
IS&T

Address:
Commander
Space and Naval Warfare Systems Command
(SPAWAR-PMW-145)
Department of the Navy
Washington, D.C. 20363-5100
Tel: (703) 682-6048

OTHER DEFENSE AGENCIES

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

DARPA is a separate agency within the Department of Defense and serves the DOD as a "door opener" to new technological ideas. DARPA's role in Research, Development, Testing and Evaluation (RDT&E) is to develop new ideas vital to our first line of defense, thereby providing insurance against technological surprise from potential adversaries. The current DARPA Technical Program has been organized around the following major thrusts, selected because of their importance to national defense:

Advanced Computing
Undersea Systems
Anti-Submarine Warfare
Land Combat
Command, Control and Communications
Lowering the Cost of National Defense through Technology
New Technology Initiatives and Seed Effort
Air Defense Systems

A specific system or operational development objective is not necessary.

Address:
Director
Defense Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, Virginia 22209-2308
Tel: (703) 694-1440

DEFENSE NUCLEAR AGENCY

The Defense Nuclear Agency (DNA) is responsible for programs which provide criti-

cal technology base information to virtually all of the SDS major subsystems (BSTS, SSTS, GSTS, GBR, SBI, GBI, and Brilliant Pebbles). The primary programs executed and managed by DNA are Operate Through, 256K-BIT Static Random Access Memory (SRAM) Development, Nuclear Backgrounds, Innovative Space Power (SPEAR II), Lethality and Target Hardening, and MBIT SRAM Development.

DNA Technical Managers initiate procurement requests (PRs), which are transmitted to the Acquisition Management Office (AM) for action. Many of the procurements are awarded via a 'FAST TRACK' system, with a goal of competitive award in 120 days from submission of PRs.

The Defense Nuclear Agency seeks contracts with firms with strong capabilities and experience in the nuclear weapons effects and nuclear weapons phenomenology areas. The research the agency sponsors includes:

Nuclear Weapons Effects
Nuclear Effects Simulation
Instrumentation
Directed Energy Effects
Nuclear Hardening and Survivability
Security of Nuclear Weapons
Operational Planning

Inquiries:
Headquarters, Defense Nuclear Agency
Contracting Division
6801 Telegraph Road
Alexandria, Virginia 22310-3398
Tel: (703) 325-7658

DEFENSE TECHNICAL INFORMATION CENTER

The Defense Technical Information Center (DTIC) is not directly involved in procurement activities. It is the central service center within the DOD for the interchange of scientific, technical, and managerial research information. DTIC serves the Department of Defense and other Federal Agencies and their contractors, subcontractors, and grantees, and participants in the DOD Potential Contractors Program.

Capacitor Reduction

SDI research has led to dramatic reductions in size of high power capacitors

To obtain products and services from DTIC, it is necessary to register and to be certified by the U.S. Government contract representative. Registration is a simple process involving completion of forms that are provided upon request. For information kits containing appropriate forms and instructions concerning registration, contact:

Defense Technical Information Center
ATTN: DTIC-FDRA
Cameron Station
Alexandria, VA 22304-6145
Tel: (703) 274-6902
Toll Free: 1-800-368-5211
(from within the U.S.)

DEPARTMENT OF ENERGY

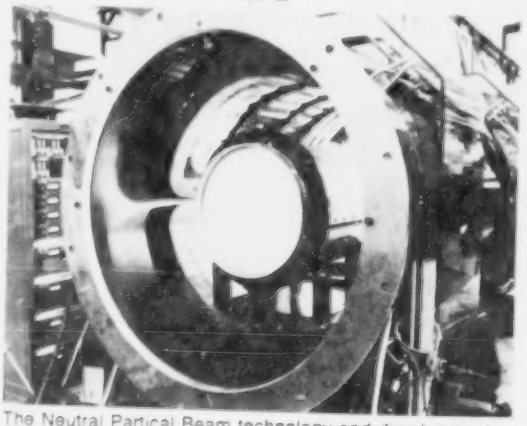
The Department of Energy (DOE) is an executing agent for certain SDIO work and technologies. The DOE contracting offices are largely decentralized. There are eight operation offices located throughout the United States. These offices provide contracting services and administer the contracts for the Department's complex National Laboratories and Management and Operation (M&O) Contractors. The laboratories and M&O contractors perform work directly or by subcontract.

The 12 multiprogram laboratories represent the core of the integral DOE scientific and technological base. Of the 12 laboratories, nine are unrestricted in their availability to serve all DOE programs (Ames, Argonne, Brookhaven, Hanford, Idaho, Lawrence Berkeley, Oak Ridge, Pacific Northwest, and Savannah River) and three are limited in their availability and referred to as weapons laboratories (Lawrence Livermore, Los Alamos, and Sandia). These three provide support to SDI and are discussed briefly in the following paragraphs.

Lawrence Livermore National Laboratory, Livermore, California

The Lawrence Livermore National Laboratory is operated for DOE by the University of California under the administrative management of the San Francisco Operations Office. Nuclear weapons design accounts for approximately half the laboratory's effort and continues to be its primary responsibility. The program addresses current weapons requirements of the Department of Defense, exploration of new nuclear explosive concepts, a broad range of research and development, and the conduct of nuclear tests essential for exploration and design of nuclear explosives. Other Livermore Laboratory programs include laser fusion technology development, laser isotope separation methods, and biomedical and environmental studies. SDI work at LLNL includes research and development of Brilliant Pebbles, particle beams, and large Optics Diamond Turning Machine for the Alpha Laser Resonater Optics.

NPB



The Neutral Partical Beam technology and development effort has made significant progress in all areas of the initial NPB weapon/discrimination system. Pictured here is a large-bore, magnetic optics lens.

Los Alamos National Scientific Laboratory, Los Alamos, New Mexico

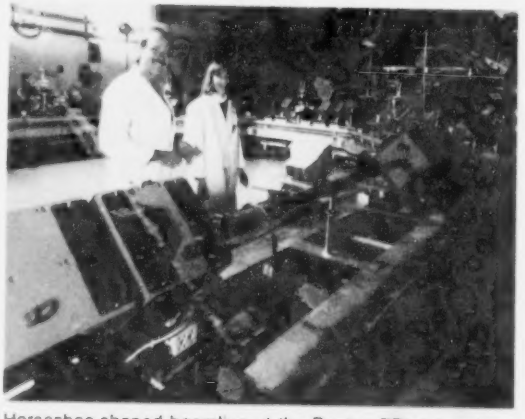
The Los Alamos National Scientific Laboratory is operated for DOE by the University of California under the administrative management of the Albuquerque Operations Office. About half the activities at Los Alamos are concerned with the development of nuclear warheads. Non-

weapons work is concentrated on advanced nuclear reactor designs, the physics of controlled thermonuclear reactions, nuclear science research, and environment and safety. The laboratory also operates an 800 MeV proton accelerator. SDI work at LANL includes research and development of particle beams and the free electron laser.

Sandia National Laboratories, Albuquerque, New Mexico and Livermore, California

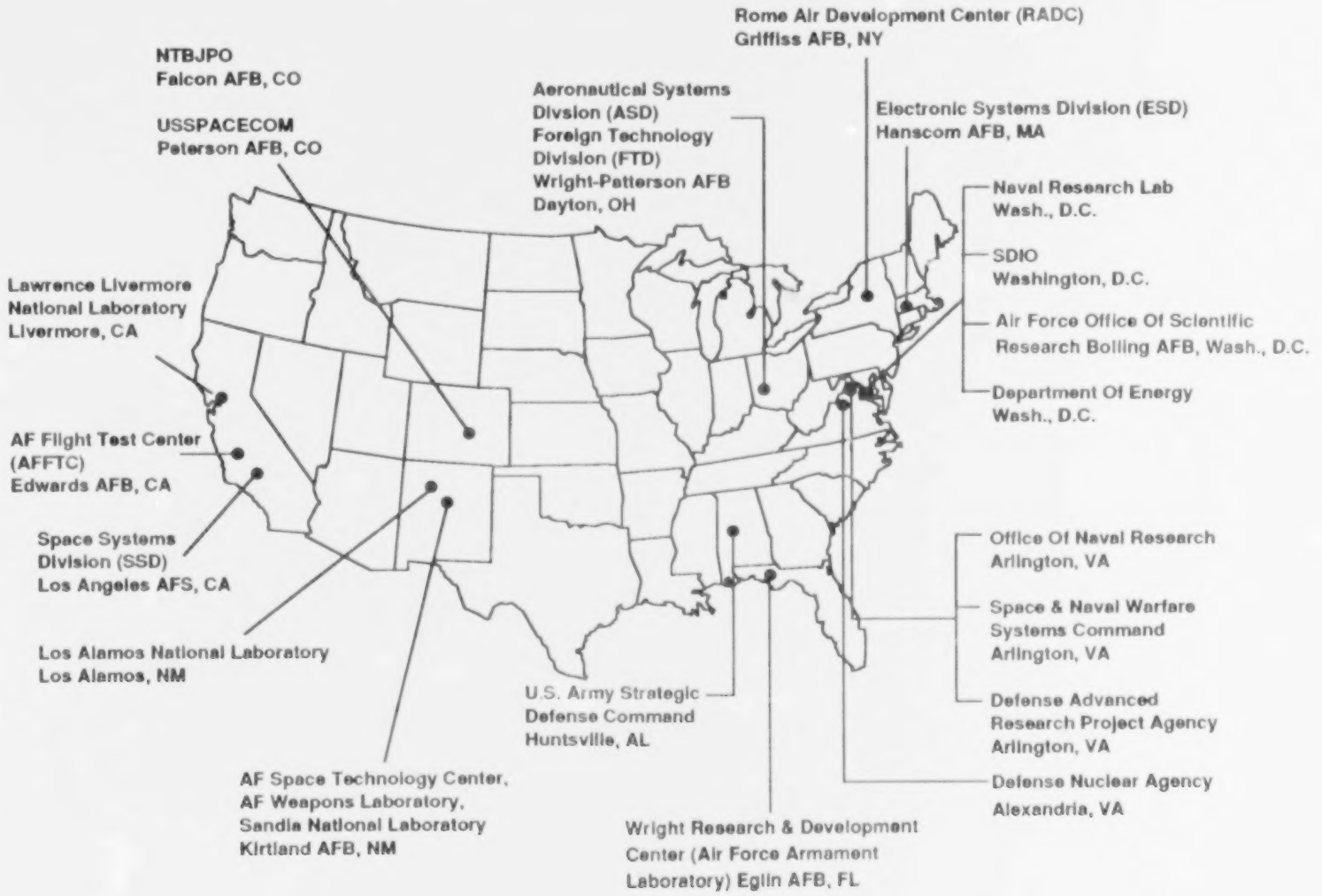
The Sandia National Laboratories are operated for DOE by the Western Electric Company under the administrative management of the Albuquerque Operations Office. Sandia's central mission is the development of the nonnuclear portions of nuclear weapons. Sandia is also responsible for major programs in fossil, solar, and laser fusion. In addition, the Nuclear Regulatory Commission sponsors major projects at Sandia in advanced reactor research and nuclear fuel cycle safety. SDI works includes research and development of particle beams.

FEL



Horseshoe-shaped beamline at the Boeing FEL laboratory transports the electron beam from the accelerator to the wiggler, where electron energy is converted into laser photons.

LOCATIONS OF SDI AGENTS



INTERNATIONAL VISIT PROCEDURES

Visits by foreign representatives to U.S. government or contractor facilities to discuss defense-related programs or technologies require the approval of the U.S. government. This is true whether the visit is classified or unclassified, or if it is within the scope of an approved export license. Only visits by a foreign contractor to a U.S. contractor to discuss business arrangements and material solely in the public domain are exempt from this requirement.

Requests to visit must be made within established U.S. Department of Defense international visit procedures and be received at least 30 days prior to the proposed visit. Notification of the proposed visit is the responsibility of the visitor and is accomplished on his or her behalf by designated U.S.-based representatives of his or her government, normally within the Embassy in Washington, D.C. DoD agencies are only authorized to accept visit requests from foreign governments, not from foreign industry.

The objective of the visit request is to officially notify the person(s) to be visited, to provide information on the visitor(s), and to receive approval for the visit.

To ensure that the request is handled in an expedient manner, it is important that the following information be clearly spelled out in the visit request:

- Location to be visited (one per request)
- Date(s) of the visit
- Purpose of the visit (Be as specific as possible. Include subjects to be discussed and contract numbers if applicable.)
- Person(s) to be visited (Include phone number and job title or office symbol)
- Information on the visitor(s)
  - Name
  - Government agency or company represented
  - Date and place of birth
  - Level of security clearance
  - Passport number

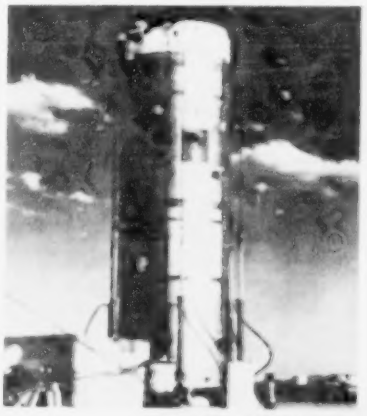
Dr. Lowell Wood of the Lawrence Livermore National Laboratory presents the President with a one-eighth scale model of a Brilliant Pebble during the President's visit to the Laboratory on February 7, 1990.

Approval for classified (or unclassified, but export-controlled) visits is based on many factors including a person's or company's "need-to-know," the releasability of the material to a country's government, as well as the convenience of the dates requested. The fact that a person holds a security clearance does not necessarily mean that he or she will receive information at that level.

Because classified information is always exchanged on a government-to-government level, each government must agree to "sponsor" the visit if it is to involve classified discussions. The Embassy will then forward the visit request and its security assurance to the appropriate foreign liaison office in the U.S. Government.

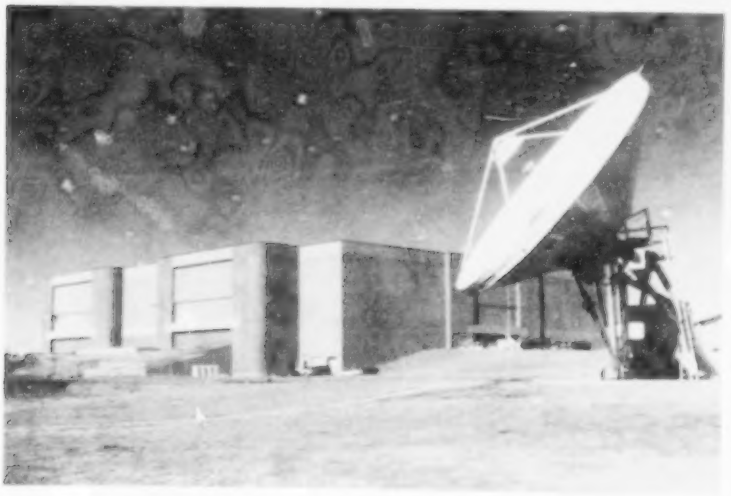
It must be noted that transactions during an approved visit are restricted to oral discussion and visual display of information only. If there is a necessity for a foreign firm or government to obtain the information in documentary form, it must make a formal request in writing through its Embassy in Washington in accordance with established procedures. U.S. industry is not authorized to provide classified information in documentary form directly to foreign governments or industry.

MIRACL Laser



An early SDI test using the Mid-Infrared Chemical Laser (MIRACL) successfully demonstrated that a ballistic missile booster is vulnerable to directed energy weapons.

NTF



SDIO's National Test Facility located at Falcon AFB, Colorado, is designed to test and evaluate integrated command and control systems for system architectures and their individual elements. The NTF is electronically linked to other SDI test and simulation facilities to form the National Test Bed.

EXPORT CONTROLS

Like other defense programs, the Strategic Defense Initiative falls under U.S. export laws. The transfer of controlled technical data or hardware to a foreign entity by a U.S. contractor requires a commercial export or munitions license. All such license applications for SDI-related technology must be coordinated with the SDIO as well as with other DOD and other Federal agencies with an interest in the technology. This process usually takes between 30 and 90 days.

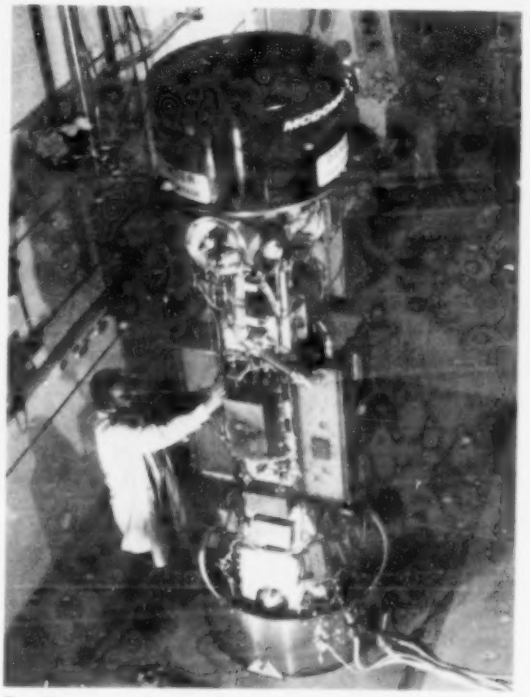
The Export Administration Act provides for controls on the export of so-called "dual-use" goods that might assist the military strength of a potential adversary. These controls are exercised by the Department of Commerce. The *Export Administration Regulations*, which are available from the U.S. Government Printing Office, outline the stringent government control in licensing exports. The Regulations include a Commodity Control List which identifies the characteristics of the goods and processes which are controlled and specifies the reason for control.

Permission to export products restricted by the Department of Commerce may be obtained from the Department's Office of Export Administration. An Application for Export License (form ITA 622) must be submitted to the Office of Export Administration accompanied by technical specifications and consignee documentation.

The Arms Export Control Act provides for the Department of State administration of the International Traffic in Arms Regulations (ITAR). These regulations, available from the Government Printing Office or the Office of Defense Trade Controls at the U.S. Department of State, set forth the rules for controlling the export of military systems, including the design, production, manufacture, repair, overhaul, processing, engineering, development, operation, maintenance or reconstruction of the implements of war on the U. S. Munitions List. These regulations also apply to any technology that advances the state-of-the-art or establishes a new art in any area of significant military application.

The State Department's Office of Defense Trade Controls grants authority to export munition products when the U. S. firm submits the appropriate form (the DSP-5 for unclassified items or the DSP-85 for classified items.) To expedite the export license process as much as possible, it is imperative that all forms clearly indicate that the request is SDI related.

BEAR



The Beam Experiment Aboard a Rocket (BEAR) successfully completed the first U.S. test of a neutral particle beam in space in July 1989.

Furthermore, a copy of the license request should be sent to the SDIO/TIM office so that its progress can be tracked, and, if necessary, assistance can be rendered.

In a subcontracting or teaming arrangement with a U.S. industrial firm, the U.S. firm may request the Department of State approve a munitions license under the procedures set forth in the International Traffic in Arms Regulation (ITAR). Under an approved munitions license, a U.S. firm may export unclassified technical data to a foreign firm directly on an industry-to-industry basis. However, classified information determined to be releasable by national disclosure policy and ITAR procedures, must be transferred on a government-to-government basis. The transfer of classified information on an industry-to-industry basis is not authorized.

Federal Acquisition Regulation

Since the Strategic Defense Initiative is a research program, the sections of the Federal Acquisition Regulation (FAR) dealing with research and development (R&D) acquisitions apply to prospective SDIO contracts with U. S. and Allied firms. (See FAR, Parts 25 and 35, and DOD FAR Supplement, Part 35.)

International Security Procedures

In order for an allied industrial firm to compete for an SDI contract or team with a U.S. prime contractor, access by that firm to classified and/or U.S. export controlled information may be needed. To enable such access under established national disclosure and Department of Defense security policies, practices, and procedures, the following requirements must be satisfied:

1. With regard to classified information, the allied industrial firm must be sponsored by its government, and assurance given by its government that the industrial firm is appropriately authorized to receive and safeguard the information;

2. A determination must be made by the appropriate elements of the Department of Defense including the Strategic Defense Initiative Organization that the classified information involved is, in fact, releasable to the government of the prospective contractor in accordance with U.S. national disclosure policy; and

3. There must be an existing bilateral general security of information agreement and an industrial security agreement with the industrial firm's government, or some other form of government-to-government agreement with appropriate security safeguards to ensure the protection of SDI classified information.

The ABM Treaty

The SDI research program is being conducted in a manner fully consistent with all U.S. Treaty obligations. The following two provisions outline U.S. obligations under the treaty:

> *Article IX*
>
> To assure the viability and effectiveness of this Treaty, each Party undertakes not to transfer to other States, and not to deploy outside its national territory, ABM systems or their components limited by this Treaty.
>
> *Agreed Statement G*
>
> The Parties understand that Article IX of the Treaty includes the obligation of the U. S. and the USSR not to provide to other States technical descriptions or blueprints specially worked out for the construction of ABM systems and their components limited by the Treaty.

To ensure that all exchanges of data and cooperative research ventures are conducted in compliance with U.S. obligations under the ABM Treaty, guidelines have been established for the use of U.S. agencies responsible for conducting such activities.

Guidelines for Cooperation

1. The U. S. will not transfer to other States ABM systems or their components limited by the Treaty.

2. SDI research data will be shared and cooperative research will be conducted only if the cooperative effort is not for the purpose of and would result in providing technical descriptions or blueprints specially worked out for the construction of ABM systems or their components.

3. Cooperating governments and industries will not be asked to conduct activities that the United States itself is prohibited from conducting under its Treaty obligations.

4. The ABM Treaty limits defense against strategic ballistic missiles; it does not limit defenses against cruise missiles or non-strategic ballistic missiles. However, the ABM Treaty prohibits giving missiles, ABM launchers, or ABM radars capabilities to counter strategic ballistic missiles. Transfers of non-ABM related technical data or hardware, which could reasonably raise a question of ABM capability, will be subject to the aforementioned prior review and approval procedure.

5. Private foreign companies may actively participate in research activities and device fabrication consistent with these guidelines and as permitted by existing government-to-government agreements.

6. The transfer of independently generated data or technology to the United States, even if ABM-related, is not restricted by the ABM Treaty.

7. The overall level of cooperative effort with each country will be subject to continuing review for compliance with U. S. obligations under the ABM Treaty.

Intellectual Property Rights

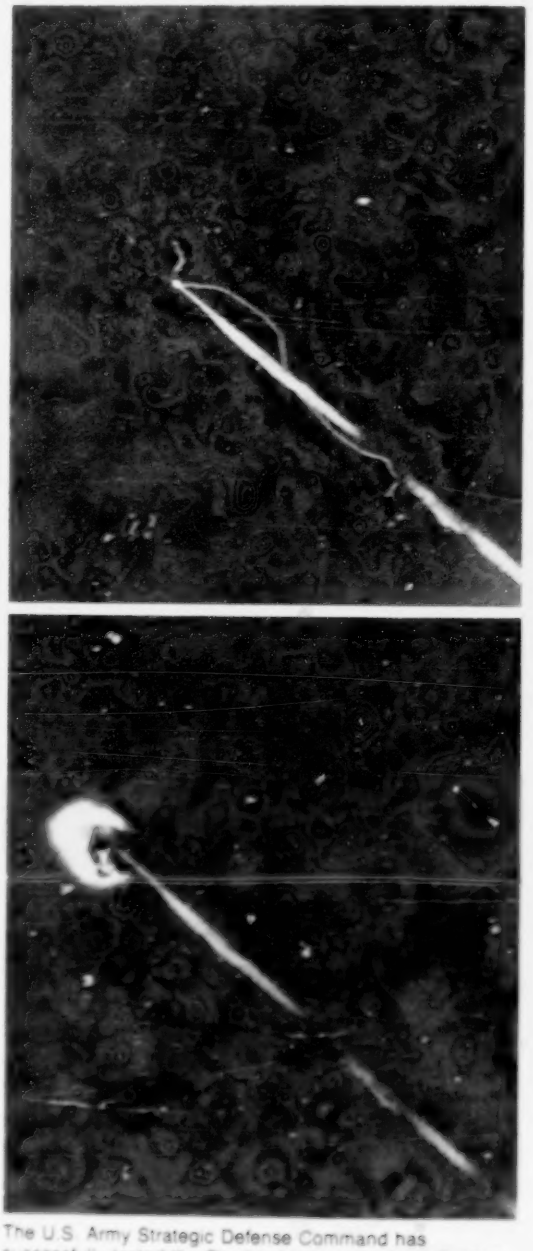
Intellectual property rights in U.S. Government acquisition regulations are addressed under "patents" and technical data in Part 27 of the FAR. For the Department of Defense, FAR 27.4 Technical Data provisions are extensively supplemented at Subpart 27.4 of the Department of Defense FAR Supplement (DFARS). Related clauses are set out in Part 52 of each regulation. The basic rights clauses generally included in contracts with non-U.S. sources are FAR 52.227-13 for patents and DFARS 52.227-7032 for technical data.

The patent clause provides that the U. S. Government will be assigned the entire right, title and interest throughout the world in and to each subject invention except to the extent rights are retained by the contractor under the procedures outlined in the clause.

The contractor has, as a minimum, a revocable nonexclusive royalty free license in such patent applications filed in any country on an invention and any resulting patent in which the U.S. Government obtains title, assuming the disclosure requirements of the clause are met. The contractor may request greater rights to an identified invention within a period specified in the clause. Such requests for greater rights may be granted if the agency head or designee determines that the interests of the United States and the general public will be better served by granting such a request.

The U.S. Government will have, as a minimum, a nonexclusive, non-transferable, irrevocable, paid-up license for each invention throughout the world by or on behalf of the Government of the United States.

FLAGE



The U.S. Army Strategic Defense Command has successfully tested the Flexible Lightweight Agile Guided Experiment (FLAGE) against a U.S. tactical missile.

Advanced Planning Briefing for Industry

The SDIO Advanced Planning Briefing for Industry is held annually to update industry and Allied nations on the "state" of the Strategic Defense Initiative and to provide a projection of where we are going and what its needs will be in the future.

The conference is generally presented in a two-day format in late October in Gaithersburg, Maryland. Traditionally during the first day, classified briefings are provided on policy aspects and future directions of the program. Briefings are generally given by the Director, SDIO; the Commander, U.S. Army Strategic Defense Command; and the Director, U.S. Air Force Space and SDI Programs; along with presentations by the Navy, Department of Energy, and several Deputies and Division heads from within SDIO. During the second day, representatives from SDIO, the Army, Air Force, and Navy present unclassified briefings on projected SDI-related procurements during the upcoming fiscal year.

The briefing is specifically planned to be of primary interest to industrial executives; advanced systems planners; directors of research, development and engineering; those concerned with the formulation of corporate long-range objectives; and to representatives from allied nations.

Since the briefing is organized on a classified basis, foreign nationals must be cleared at the SECRET level by their respective government and must submit a visit request to the Defense Intelligence Agency (DIA) not less than 30 days prior to the symposium date via the respective Embassy.

Approval of the visit must be received prior to admission to the symposium. No exceptions can be made to waive the security clearance requirements.

To obtain registration information, address inquiries to: The American Defense Preparedness Association, Two Colonial Place, Suite 400, 2101 Wilson Boulevard, Arlington, Virginia 22201-3061, Telephone: (703)522-1820.

Colonel Raymond Ross, director of the Sensor and Interceptor Technology office in SDIO, explains a 1990 Firepond Laser Radar Experiment

Theater Defense Technologies and Applications Conference

The multinational conference on Theater Defense Technologies and Applications is generally held annually to enhance dialogue among a wide number of government and industry participants in Theater Ballistic Missiles Defense Studies. The Conference also provides a forum for sharing experimental results and analytical insights regarding: the missile threat, possible defense architectures, key technical requirements, related achievements, critical issues (political or technical), and other missile defense issues facing Western Allies today.

The conference is organized on a classified basis and is open to foreign nationals who are actively involved in the studies and technologies under discussion and who are cleared at the SECRET level by their government. The conference is held in a different country each year and visit requests should be submitted to the appropriate governmental authority responsible for each conference.

The principal focus of the conference is on active defense concepts and technologies needed to achieve complete theater and tactical ballistic missile defenses, but also explores passive defense and counter-force elements of a complete missile defense program.

Additional information concerning the Theater Defense Technologies and Applications Conference can be obtained from: American Institute of Aeronautics and Astronautics, 370 l'Enfant Promenade, SW, Washington, D. C. 20024, telephone: (202) 646-7452.

Technical Achievements Symposium

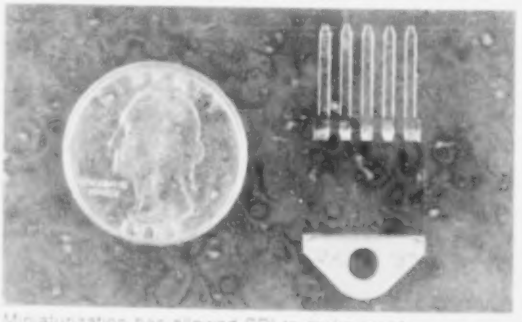
The Strategic Defense Initiative Technical Achievements Symposium is generally held annually in the early spring at the National Academy of Sciences, 2101 Constitution Avenue, N. W., Washington, D. C.

The objective of the Symposium is to present a comprehensive look at accomplishments in research and engineering that have enabled SDI to meet program requirements and technical goals. The Symposium is held in a two-day format with a banquet held the first evening to commemorate those making outstanding contributions to strategic defense research.

Since the Symposium is organized on a classified basis, foreign nationals must be cleared at the SECRET level by their government and must submit a visit request to the Defense Intelligence Agency (DIA) not less than 30 days prior to the symposium date via the respective Embassy.

Registration information and information concerning presentation of papers can be obtained from: The American Defense Preparedness Association, Two Colonial Place, Suite 400, 2101 Wilson Boulevard, Arlington, Virginia 22201-3061, Telephone: (703)522-1820.

Miniaturization



Miniaturization has allowed SDI to make great technological advances. Pictured is a Metal Oxide Semiconductor (MOS) -Controlled Thyristor (MCT) switching device.

Chapter 8 - FOR MORE INFORMATION...

European Office of Aerospace Research and Development (EOARD)

The mission of the SDI Coordinator in the European Office of Aerospace Research and Development is to encourage European research groups to generate innovative approaches to SDI program needs. The coordinator serves as a liaison in visiting R&D centers, writing up reports, and providing information on activities in Europe to SDIO.

The EOARD also maintains a list of technical needs/research opportunities to which the U. S. program managers seek innovative ideas and can serve as a value review source for innovative concepts and ideas and can work with groups to develop detailed proposals and White Papers.

SDI Coordinator
European Office of Aerospace
Research and Development
223/231 Old Marylebone Road
London NW1 5th
England

Tel: 011-44-71-409-4354,
Fax: 011-44-71-724-1433.

"I remember the day when SDI was announced. I remember thinking how important it is always for the nations who have espoused the cause of freedom to keep ahead in technology."

British Prime Minister Margaret Thatcher addressing a group at SDIO's National Test Facility on Aug 3, 1990.

ALLIED POINTS OF CONTACT

Embassy of the Federal Republic of Germany
Counselor, Defense Research and
Engineering
4645 Reservoir Road, N.W.
Washington, D.C. 20007
(202) 298-4377

BMVg - RuTI3
Post Fach 1328
5300 Bonn 1
Federal Republic of Germany
(228) 125602

Embassy of Israel
Israeli SDI Cooperation Office
3514 International Drive, N.W.
Washington, D.C. 20008
(202) 364-5402

SDI Cooperation Office
R & D Directorate (Mafat)
Ministry of Defense
Tel Aviv
(3) 205708

Embassy of Italy
Attache for Defense Technological Research
1601 Fuller Street, N.W.
Washington, D.C. 20009
(202) 328-5559

Ufficio Relazioni
Difensa - Industria (URDI)
Segredifensa
Via Napoli 41
00871 Roma
(6) 481-7805

Embassy of Japan
Political Section
2520 Massachusetts Avenue, N.W.
Washington, D.C. 20008
(202) 939-6745

National Security Affairs Division
North American Affairs Bureau
Ministry of Foreign Affairs
Tokyo
(03) 580-3311

Embassy of the United Kingdom
SDI Participation Office
3100 Massachusetts Avenue, N.W.
Washington, D.C. 20008
(202) 898-4349

Strategic Defense Initiative
Participation Office
Ministry of Defence
Northumberland House
Northumberland Avenue
London WC2N 5BP
(71) 218-4058

Embassy of France
Office of the Armament Attache
4101 Reservoir Road, N.W.
Washington, D.C. 20007-2172
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